TENTATIVE
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2020-XXXX

FOR
BARREL TEN QUARTER CIRCLE LAND COMPANY
BARREL TEN QUARTER CIRCLE, ESCALON CELLARS
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) for the Barrel Ten Quarter Circle Land Company (Discharger) is issued pursuant to Water Code section 13267. A glossary of terms used in this MRP is included on the last page.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, soil, solids/sludges, and groundwater.

The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, 1 March 1991 ed. (SPRRs). Field test instruments (such as those used to measure pH, electrical conductivity, dissolved oxygen, wind speed, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated at the frequency recommended by the manufacturer;
3. The instruments are serviced and/or calibrated at the manufacturer's recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

1. Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA);
2. Test Methods for Evaluating Solid Waste (EPA);
3. Methods for Chemical Analysis of Water and Wastes (EPA);
4. Methods for Determination of Inorganic Substances in Environmental Samples (EPA); Standard Methods for the Examination of Water and Wastewater (APHA/AWWA/WEF); and
5. Soil, Plant and Water Reference Methods for the Western Region (WREP 125).

Approved editions shall be those that are approved for use by the U.S. Environmental Protection Agency or the State Water Resources Control Board's Environmental Laboratory Accreditation Program (ELAP). The Discharger may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower

than concentrations that implement applicable water quality objectives/limits for the constituents to be analyzed.

If monitoring consistently shows no significant variation in a constituent concentration or parameter after at least eight consecutive groundwater monitoring events, the Discharger may request this MRP be revised to reduce monitoring frequency, constituent analyses, or monitoring parameters. The proposal must include adequate technical justification for a reduction in monitoring frequency. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP.

SOURCE WATER MONITORING

Samples of source water shall be collected from each source (Wells 1, 3, and 4, and the South San Joaquin Irrigation District irrigation water). At a minimum, the Discharger shall sample the source water beginning in **2020** prior to the start of the processing season and analyze the samples for the parameters listed in the table below. Data shall be reported in the corresponding annual monitoring report.

Constituent	Units	Sample Type	Sampling and Reporting Frequency
Electrical Conductivity	µmhos/cm	Grab	Every three years
Total Dissolved Solids	mg/L	Grab	Every three years
Nitrate as Nitrogen	mg/L	Grab	Every three years

WASTEWATER EFFLUENT MONITORING

Wastewater samples shall be collected from the effluent at the process water sump, shown on Attachment C to the WDRs, and shall be representative of wastewater quality that is applied to the LAAs. Sampling is only required when wastewater is discharged to the LAAs. At a minimum, wastewater monitoring shall include the following:

Constituents	Units	Sample Type	Sample Frequency	Reporting Frequency
Electrical Conductivity	µmhos/cm	Composite	Monthly	Quarterly
BOD_5	mg/L	Composite	Monthly	Quarterly
FDS	mg/L	Composite	Monthly	Quarterly
Total Nitrogen	mg/L	Composite	Monthly	Quarterly
Nitrate as Nitrogen	mg/L	Composite	Monthly	Quarterly

Constituents	Units	Sample Type	Sample Frequency	Reporting Frequency
Chloride Sodium Dissolved Iron (filtered) Dissolved Manganese (filtered)	mg/L	Composite	Annually	Annually

FLOW MONITORING

When wastewater is discharged to the LAAs, the Discharger shall monitor wastewater flows from the meter location depicted on Attachment C as follows:

Flow Source	Units	Sample Type	Sampling Frequency	Reporting Frequency 2
Flow Meter	Gallons	Meter	Daily (total daily flow)	Quarterly (Annual report shall include yearly total flow)

TAILWATER BASIN MONITORING

The Discharger shall monitor the tailwater pond when water is present in accordance with the following.

Constituent/ Parameter	Units	Sample Type	Monitoring Frequency	Reporting Frequency
Presence/Absence of Water	--	Observation	Weekly	Quarterly
Freeboard	0.1 feet	Measurement	Weekly	Quarterly
Odors	--	Observation	Weekly	Quarterly
Berm Conditions	--	Observation	Weekly	Quarterly

LAND APPLICATION AREA MONITORING

A. Field Inspections

The Discharger shall inspect the LAAs at least once weekly during irrigation events, and observations from those inspections shall be documented for inclusion in the quarterly monitoring reports. The following items shall be documented for field to be irrigated on that day:

1. Berm condition;
2. Condition of each standpipe and flow control valve (if applicable);
3. Condition of all ditches used for the conveyance of wastewater and tailwater;

4. Ponding;
5. Potential and actual runoff or discharge to off-site areas, including surface water; and
6. Odors that have the potential to be objectionable at or beyond the property boundary.

Temperature, wind direction, and other relevant field conditions shall also be observed and recorded. The notations shall also document any corrective actions taken based on observations made. A copy of entries made in the log shall be submitted as part of the Quarterly Monitoring Report.

B. Routine Monitoring

The Discharger shall perform the following routine monitoring and loading calculations during all months when land application occurs and shall present the data in the Quarterly Monitoring Reports.

Constituent	Units	Measurement	Measurement Frequency	Reporting Frequency
Precipitation	0.1 inch	Rain Gauge	Daily	Quarterly
Irrigation fields	--	Observation	Daily	Quarterly
Hydraulic Loading Rate (from each source)	Inch	Calculated	Daily	Quarterly
BOD5 Loading Rate	lb/ac/day	Calculated	Daily	Quarterly
Total Nitrogen Loading	lb/ac/year	Calculated	Monthly	Quarterly
FDS Loading Rate	lb/ac/day	Calculated	Monthly	Quarterly

Note: Precipitation data obtained from the nearest National Weather Service rain gauge is acceptable. The hydraulic loading rate shall be calculated for each check within each LAA field. Volumes for each check can be estimated based on the duration of flow, the number of checks being irrigated at any one time, and the daily flow rates for each field. Calculations and assumptions shall be clearly documented. Loading rates shall be calculated for each LAA. BOD5 loading shall be calculated using the daily applied volume of wastewater, actual application area, and most recent BOD_5 results for the wastewater. Total nitrogen loading rates shall be calculated using the applied volume of wastewater, actual application area, and the most recent total nitrogen results for the wastewater. Loading rates for supplemental nitrogen (including commercial fertilizers, manure from cattle, etc.) shall be calculated using the actual load and application area. FDS loading rates shall be calculated using the daily applied volume of wastewater, actual application area, and most recent FDS results for the wastewater.

GROUNDWATER MONITORING

The Discharger shall maintain the groundwater monitoring well network. If a groundwater monitoring well is dry for more than four consecutive sampling events or is damaged, the Discharger shall submit to the Central Valley Water Board a workplan and proposed time schedule for its replacement, and the well shall be replaced following approval of the workplan. Alternatively, the Discharger shall submit a report with supporting evidence that a replacement well is not needed.

Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for review and approval. Once installed, all new monitoring wells shall be appropriately incorporated into monitoring conducted under this MRP and shall be monitored on a semiannual basis.

The groundwater monitoring program applies to groundwater monitoring wells tabulated below and any wells subsequently installed under approval of the Central Valley Water Board. All downgradient wells are compliance monitoring wells, with the exception of MW-3. MW-3 is not identified as a compliance well at this time because historic analytical data have not shown groundwater degradation as a result of discharges to LAA 4. LAA 4 consists of 1.8 acres and does not consistently receive wastewater (i.e., two discharges total in 2018 and no discharges in 2018). If groundwater data from MW-3 shows degradation as a result of wastewater discharges, MW-3 may be identified as a compliance well upon revision of this MRP.

Monitoring Well	Well Classification
MW1	Upgradient
MW2	**Downgradient - Compliance well**
MW-3	Downgradient
MW4	**Downgradient - Compliance well**
MW5	**Downgradient - Compliance well**
MW6	Upgradient
MW-6D	Upgradient
MW-7	Upgradient
MW-8	**Downgradient - Compliance well**
MW-9	**Downgradient - Compliance well**

Prior to sampling, depth to groundwater measurements shall be measured in each monitoring well to the nearest 0.01 feet. Groundwater elevations shall then be calculated to determine groundwater gradient and flow direction. Sampling activities shall be conducted in accordance with an approved Sampling and Analysis Plan. Samples shall be collected and analyzed using standard EPA methods. Groundwater monitoring shall include, at a minimum, the paraments and constituents listed in the table below. Groundwater elevation shall be determined based on depth-to-water measurements using a surveyed measuring point elevation on the well and a surveyed reference elevation. Samples shall be filtered with a 0.45-micron filter, at the laboratory, prior to sample preservation for standard minerals and shall include, at a minimum, dissolved iron, dissolved manganese, chloride, and sodium

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to Groundwater	0.01 feet	Measurement	Semi-Annually	Annually
Groundwater Elevation[1]	feet	Calculated	Semi-Annually	Annually
Gradient	feet/feet	Calculated	Semi-Annually	Annually
Gradient Direction	degrees	Calculated	Semi-Annually	Annually
EC	µmhos/cm	Grab	Semi-Annually	Annually
TDS	mg/L	Grab	Semi-Annually	Annually
Total Nitrogen	mg/L	Grab	Semi-Annually	Annually
Nitrate Nitrogen	mg/L	Grab	Semi-Annually	Annually
Standard Minerals	mg/L	Grab	Annually	Annually

GROUNDWATER LIMITATIONS

The Groundwater Limitations set forth in Section E of WDRs Order R5-2020-XXXX shall apply to the specific compliance monitoring wells identified below. Groundwater quality and compliance with Groundwater Limitations will be conducted using intrawell evaluations. For the current groundwater quality limitation, concentration trends shall be evaluated. If exceedances of numerical limitations or increasing concentrations are occurring, upgradient wells shall also be evaluated. This table is subject to revision by the Executive Officer following construction of any new compliance monitoring wells.

Constituent	Groundwater Limitation	Compliance Wells
TDS	Current Groundwater Quality	MW-4, MW-5
TDS	1,000 mg/L (Secondary Maximum Contaminant Upper Level)	MW-2, MW-8, MW-9
Nitrate as Nitrogen	10 mg/L (Primary Maximum Contaminant Level)	MW-2, MW-5
Nitrate as Nitrogen	Current Groundwater Quality	MW-4, MW-8, MW-9

Current groundwater quality will be defined using approved statistical methods described in an approved *Groundwater Limitation Compliance Assessment Plan* (Provision H.1.a).

If groundwater quality performed pursuant to this MRP shows that an exceedance of the Groundwater Limitation is occurring, as defined using approval statistical methods for intrawell evaluations described in an approved *Groundwater Limitation Compliance Assessment Plan* (Provision H.1.a in this Order), the Discharger shall submit a technical evaluation of the reason for the exceedance and a discussion on possible mitigation measures that could be taken, if needed. The evaluation shall also include a discussion of changes in upgradient conditions to determine if exceedances are the result of changing upgradient conditions which are likely out of the Discharger's control.

As required per Provision H.2 of WDRs Order R5-2020-XXXX, a BPTC Evaluation Workplan shall be submitted by the Discharger that sets forth the scope and schedule for a systematic and comprehensive technical evaluation of each component of the Dischargers' waste treatment and disposal system to determine best practicable treatment and control for each waste constituent that exceeds a Groundwater Limitation. If it is determined that the exceedance is not the result of discharges by the Discharger, the Discharger shall submit a technical report with supporting evidence that the exceedance is out of the Discharger's control.

SOLIDS MONITORING

The Discharger shall monitor volumes of residual solids generated and disposed of and reported in annual monitoring reports:

1. Volume of Solids Generated. Solids may include pomace, seeds, stems, screenings, and sump solids, or other material.
2. Volume Disposed of Off-site. Describe the disposal method (e.g. animal feed, land application, off-site composting, landfill, etc.); the amount disposed (tons); and the name of the hauling company.

REPORTING

All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents that are less than 50MB should be emailed to centralvalleysacramento@waterboards.ca.gov.

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

County:	San Joaquin
Facility:	Barrel Ten Quarter Circle, Escalon Cellars
Program:	Non-15 Compliance
Order Number:	R5-20XX-XXXX
CIWQS Place ID:	208745

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable.

The results of any monitoring done more frequently than required at the locations specified in the MRP shall be reported to the Central Valley Water Board.

As required by the Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Professional Engineer or Professional Geologist and signed by the registered professional.

A. Quarterly Monitoring Reports

Daily, weekly, and monthly monitoring data shall be reported in the quarterly monitoring report. Quarterly reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following the quarter** (i.e. the January - March quarterly report is due by 1 May). The fourth quarter monitoring report may be submitted as part of the corresponding annual monitoring report. At a minimum, the report shall include:

1. Results of Wastewater Effluent Monitoring in tabular format for each week and month during the reported quarter.

2. Results of Tailwater Basin Monitoring in tabular format for each month during the reported quarter.

3. Results of Flow Monitoring in tabular format for each month during the reported quarter, including calculated values for the total flow and average daily flow for each month and total annual flow to date.

4. Results of LAA Monitoring, including:

    a. Calculated hydraulic loading rate for each month during the reported quarter and cumulative annual loading.

    b. Calculated **mass of FDS** applied to each LAA on a daily basis shall be calculated using the following formula:

$$M = \frac{8.345(CV)}{A}$$

Where:

M = mass of FDS applied to an LAA in lb/ac/day
C = concentration of FDS in mg/L based on the most recent monitoring result
V = volume of wastewater applied to the LAA in millions of gallons per day
A = area of the LAA irrigated in acres

8.345 = unit conversion factor

c. Calculated **irrigation cycle average BOD loading rate** for each LAA using the following formula:

$$M = \frac{8.345(CV) + M_x}{AT}$$

Where:

M = mass of BOD applied to each LAA field in lb/ac/day/irrigation cycle
C = concentration of BOD in mg/L based on the most recent monitoring result
V = volume of wastewater applied to the LAA field in millions of gallons during the irrigation cycle
A = area of the LAA field irrigated in acres
T = Irrigation cycle length in days (from the first day water was applied to the last day of the drying time)
Mx = BOD mass from other sources (e.g., cattle manure, Settling Pond solids, and residual solids) in pounds
8.345 = unit conversion factor

c. Calculated **nitrogen loading rate** for each LAA using the following formula:

$$M = \sum_{i=1}^{12} \frac{(8.345(C_i V_i) + M_x)}{A}$$

Where:

M = mass of nitrogen applied to LAA in lb/ac/yr.
Ci = Monthly average concentration of total nitrogen for month i in mg/L.
Vi = volume of wastewater applied to the LAA during calendar month i in millions of gallons.
A = area of the LAA irrigated in acres.
i = the number of the month (e.g., Jan. = 1, Feb. = 2, etc.).
Mx = nitrogen mass from other sources (e.g., fertilizer, manure, and compost) in pounds per acre.
8.345 = unit conversion factor.

5. A comparison of monitoring data to the flow limitations, effluent limitations, and discharge specifications and an explanation of any violation of those requirements;

6. A calibration log verifying calibration of all handheld monitoring instruments and devices used to comply with the prescribed monitoring program; and

7. Copies of the laboratory analytical data reports shall be maintained by the Discharger and submitted to the Central Valley Water Board.

B. Annual Monitoring Reports

An Annual Monitoring Report shall be submitted to the Central Valley Water Board by **1 February** each year and shall include the following:

Flow Monitoring

1. Total annual flow discharged to LAAs and determination of compliance with the annual flow limitation of the WDRs.

Process Supply Water Monitoring

1. Analytical data table showing historical and current results. A narrative description of changes in water quality over time, if any, and the potential impact on the wastewater quality.

Groundwater Monitoring

1. A narrative description of all preparatory, monitoring, sampling, handling, and analytical testing for groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs Order R5-2020-XXXX, this MRP, and the SPRRs.
2. A field log for each well documenting depth to groundwater; method of purging, parameters measured before, during, and after purging; sample preparation (e.g., filtering); and sample preservation. Low or no-purge sampling methods are acceptable if described in an approved Sampling and Analysis Plan.
3. Summary data tables of historical and current water table elevations and analytical results, comparison with previous flow direction and gradient data, and discussion of seasonal trends if any.
4. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to an appropriate datum (e.g., NGVD).
5. An evaluation of the groundwater quality beneath the site and determination of compliance with the Groundwater Limitations per WDRs Order R5-2020-XXXX, based on statistical analysis for each constituent monitored for each compliance well in accordance with the approved Groundwater Limitations Compliance Assessment Plan. Include all calculations and data input/analysis tables derived from use of statistical software, as applicable.

6. Copies of the laboratory analytical data reports shall be maintained by the Discharger and submitted to the Central Valley Water Board.

Additional Reporting

1. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the WDRs.

2. Monitoring equipment maintenance and calibration records, as described in Section C.4 of the SPRRs, shall be maintained by the Discharger and provided upon request by the Central Valley Water Board.

3. A discussion of the following:
   a. Waste constituent reduction efforts implemented in accordance with any required workplan;
   b. Other treatment or control measures implemented during the calendar year either voluntarily or pursuant to the WDRs, this MRP, or any other Order; and
   c. Based on monitoring data, an evaluation of the effectiveness of the treatment or control measures implemented to date.
4. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring network or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the submitting Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the submitting Discharger, or its authorized agent, as described in the Section B.3 of the SPRRs (General Reporting Requirements).

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region on XX MONTH 2020.

PATRICK PULUPA, Executive Officer

GLOSSARY

BOD_5	Five-day biochemical oxygen demand
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
Daily	Every day except weekends or holidays
Weekly	Once per week
Monthly	Once per calendar month
Quarterly	Once per calendar quarter
Semiannually	Once every six calendar months (i.e., two times per year) during non-consecutive quarters
Annually	Once per year
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
gpd	Gallons per day
mgd	Million gallons per day